



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,113	09/19/2001	Manabu Nakamura	2001_1320A	9604
513	7590	07/12/2005	EXAMINER	
WENDEROTH, LIND & PONACK, L.L.P.			AHN, SAM K	
2033 K STREET N. W.				
SUITE 800				
WASHINGTON, DC 20006-1021			ART UNIT	PAPER NUMBER
			2637	

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/955,113

Applicant(s)

NAKAMURA ET AL.

Examiner

Sam K. Ahn

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on amendment, 03/16/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13 is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1,2,3,6,9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura, USP 5,974,040 (cited previously) in view of van Driest USP 6,115,411.

Regarding claims 1 and 3, Kimura teaches a demodulation method and an apparatus for establishing synchronization from a received signal (IN in Fig.1 and Fig.3B) that contains a synchronization establishment signal (preamble in Fig.3A resulting in s13 in Fig.3B) wherein the change in amplitude periodically alternates between two values. In the specification, note page 6, lines 36-37, the preamble in the synchronization establishment signal contained comprises "01"(represents low) and "10" (represents high), thus have plurality of timings of changes in the positive/negative polarity of the change in amplitude. Kimura also teaches the preamble in the synchronization establishment signal (see Fig.3A of PR's having the bit sequence "011001", and note col.4, lines 39) of having a plurality of timings of changes in the positive/negative polarity of the change in amplitude by [from "01" (low1) to "10" (high) and "01" (low2)], thus, there are plurality of changes wherein the first change occurs during low1 to high and the second change occurs during high to low2).

Kimura further teaches demodulating said received signal (note col.3, lines 38-44), the demodulation method comprising a step of establishing synchronization from said received signal (IN) based on the timing of changes in the two values of the change in amplitude of the synchronization establishment signal contained in the received signal ( $T_m$  in Fig.3B is used for synchronizing wherein the change in value of s13 triggers and generates the  $T_m$ ) by the positive/negative change timing detection means (12,13 in Fig.1), and demodulating said received signal. However, Kimura does not teach synchronization establishment means for establishing synchronization from the received signal based on the timings detected by said positive/negative change timing detection means.

Van Driest teaches re-transmission of a preamble and data (note col.6, line 27). Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the teaching of van Driest in the system of Kimura of retransmitting the preamble and the data for the purpose of correcting any errors detected by a receiver, as taught by van Driest (note col.6, lines 27-28). By retransmitting the preamble the synchronization establishment signal receiving a second preamble (during retransmission) establishes synchronization, thus establishes synchronization based on the timings detected by said positive/negative change timing detection means (first timing detected during initial transmission, and a second timing detected during re-transmission).

Regarding claims 2 and 6, Kimura in view of van Driest teach all subject matter claimed, as applied to claim 1 or 3. Kimura further teaches synchronization is established from a plurality of received signals (wherein receiving slots 1 ~ 4 from different mobile stations, note col.7, line 59 – col.8, line 5, each having its preamble) are each synchronized for each received signal and each of said received signal is demodulated (wherein the step of demodulating is explained above).

Regarding claims 9 and 10, Kimura in view of van Driest teach all subject matter claimed, as applied to claim 1 or 3. Kimura further teaches a preamble pattern wherein 1001 is repeated in  $\pi/4$ -shift QPSK (see Fig.3A and note col.4, lines 41-42) is used as the synchronization establishment signal (wherein  $T_m$  is generate from the IN signal in Fig.3B), and a burst signal (note col.2, lines 1-11) containing said preamble pattern is used as the received signal.

2. Claims 4,5,11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura, USP 5,974,040 in view of van Driest USP 6,115,411 and Ejzak et al, USP 6,069,883 (Ejzak).

Regarding claims 4 and 5, Kimura teaches a demodulation method and an apparatus for establishing synchronization from a received signal (IN in Fig.1 and Fig.3B) that contains a synchronization establishment signal (preamble in Fig.3A resulting in s13 in Fig.3B) wherein the change in amplitude periodically alternates

between two values. In the specification, note page 6, lines 36-37, the preamble in the synchronization establishment signal contained comprises "01" (represents low) and "10" (represents high), thus have plurality of timings of changes in the positive/negative polarity of the change in amplitude. Kimura also teaches the preamble in the synchronization establishment signal (see Fig.3A of PR's having the bit sequence "011001", and note col.4, lines 39) of having a plurality of timings of changes in the positive/negative polarity of the change in amplitude by [from "01" (low1) to "10" (high) and "01" (low2)], thus, there are plurality of changes wherein the first change occurs during low1 to high and the second change occurs during high to low2).

Kimura further teaches demodulating said received signal (note col.3, lines 38-44), the demodulation method comprising a step of establishing synchronization from said received signal (IN) based on the timing of changes in the two values of the change in amplitude of the synchronization establishment signal contained in the received signal (Tm in Fig.3B is used for synchronizing wherein the change in value of s13 triggers and generates the Tm) by the positive/negative change timing detection means (12,13 in Fig.1), and demodulating said received signal. However, Kimura does not teach synchronization establishment means for establishing synchronization from the received signal based on the timings detected by said positive/negative change timing detection means.

Van Driest teaches re-transmission of a preamble and data (note col.6, line 27). Therefore, it would have been obvious to one skilled in the art at the time of the

invention to incorporate the teaching of van Driest in the system of Kimura of retransmitting the preamble and the data for the purpose of correcting any errors detected by a receiver, as taught by van Driest (note col.6, lines 27-28). By retransmitting the preamble the synchronization establishment signal receiving a second preamble (during retransmission) establishes synchronization, thus establishes synchronization based on the timings detected by said positive/negative change timing detection means (first timing detected during initial transmission, and a second timing detected during re-transmission). Although Kimura teaches wherein the elements are comprised in a base station (note col.3, lines 64-65, reads on the limitation of a modem in which a base station inherently comprises a combination of modulator and demodulator) comprising an antenna (1 in Fig.4), transmission means (20,19) and receiving means (elements in Fig.1), does not explicitly teach the base station comprising control means.

Ejzak teaches antenna (301,306 in Fig.3) transmitting and receiving means (305,302) and inherently modulating means for modulating the signals to transmit, in a base station and communicating between the base station and mobile stations (see Fig.12) wherein the base station is further connected to external apparatus or packet or circuit switched network (1203 in Fig.12) communicated by control means (303 in Fig.3) for communicating the signals exchanged with the mobile station to the external apparatus. Therefore, it would have been obvious to one skilled in the art at the time of the invention to combine

Kimura and Ezjak by having Kimura's synchronization means in the receiver of Ezjak and thus establish fast synchronization by detecting the preambles in the received signal, and further communicate the signals exchanged to the packet or switched network for the purpose of transceiving mobile station's signals to the data and switched network, and thus connect the mobile station to a landline phone and the internet.

Regarding claims 11 and 12, Kimura in view of van Driest teach all subject matter claimed, as applied to claim 4 or 5. Kimura further teaches a preamble pattern wherein 1001 is repeated in  $\pi/4$ -shift QPSK (see Fig.3A and note col.4, lines 41-42) is used as the synchronization establishment signal (wherein  $T_m$  is generate from the IN signal in Fig.3B), and a burst signal (note col.2, lines 1-11) containing said preamble pattern is used as the received signal.

3. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura, USP 5,974,040 in view of van Driest USP 6,115,411 and Karaali, USP 5,164,965.

Regarding claims 7 and 8, Kimura in view of van Driest teach all subject matter claimed, as applied to claim 3. However, Kimura in view of van Driest does not explicitly teach change point measurement means for averaging the plurality of timing detected by said positive/negative change timing detection means wherein said positive/negative change timing detection means extracts a plurality of



timings at the value of the waveform of the change in amplitude crosses the zero point.

Karaali teaches change point measurement means (note col.5, lines 26-27) for averaging the plurality of timing detected by positive/negative change timing detection means (204 in Fig.2) wherein said positive/negative change timing detection means extracts a plurality of timings at the value of the waveform of the change in amplitude crosses the zero (note col.3, lines 1-2). Therefore, it would have been obvious to one skilled in the art at the time of the invention to implement the teaching of Karaali in the system of Kimura of positive/negative change timing detection means for the purpose of designing the system to counter the effect of jitters and noise, as taught by Karaali (note col.5, lines 27-28).

***Allowable Subject Matter***

4. Claim 13 is allowed.

***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory

Art Unit: 2637

action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sam K. Ahn  
7/8/05

TEMESGHEN GHEBRETSINAE  
PRIMARY EXAMINER  
7/8/05  
oe LS